

# THE MINING AND METALLURGICAL JOURNAL.

FORMERLY THE PACIFIC COAST BULLION.

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LOS ANGELES, CAL., MAY 15, 1896

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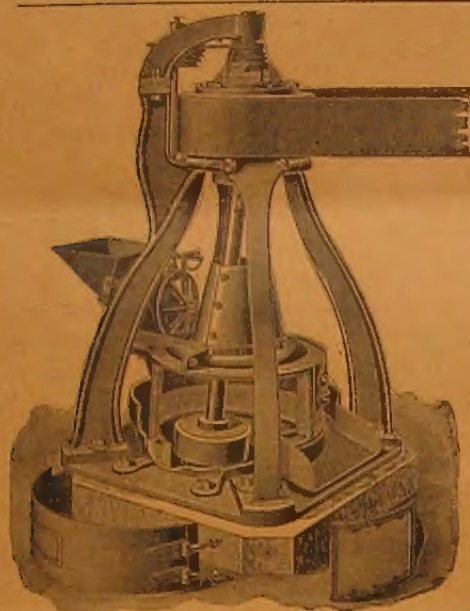
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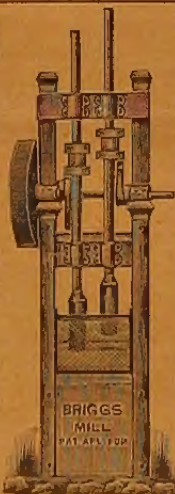
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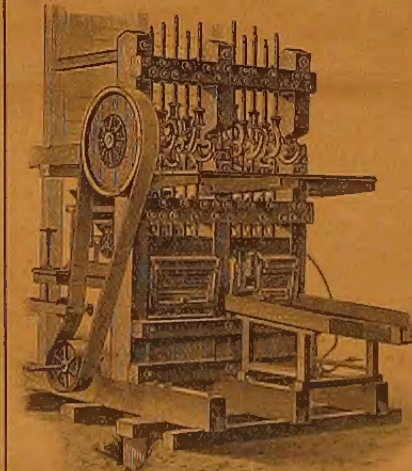
In the treatment of many low grade ores, the margin of profit is sometimes so small that great care and judgment is required in the selection of properly designed machines and appliances as well as in the arrangement of the same. The manufacture of

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As he is a man of recognized ability and whose character is above reproach, Mr. Teller will have great influence in the impending campaign. Should the elements in opposition to the Democratic and Republican parties name him as their candidate, Republicans, unless they are goldites, will have no good reason for withholding their votes from him. Democrats who are willing to subordinate the tariff to the money issue can support him with good conscience. His nomination, or that of any other man of similar attitude will relieve the country of the clasp-trap of bimetallism with a string to it, in that expression "so as to preserve the parity of the two metals." Parity will mean that which is prescribed in the law providing for the coinage of the two metals. It will put a stop to the heretical idea of measuring one as a commodity with the other, which has a legal money value. Several of the Republican Senators will follow the lead of Mr. Teller. The campaign promises to be an interesting one at least.



## MARKET FOR ZINCY ORES.

Owing to the great quantity of zincy ores in Arizona, New Mexico and California the question is often asked if there is any sale for this class of ores. The regular smelters buy all classes of zinc-bearing ores, but if the zinc contents exceed 12 per cent they add 50 cents for each per cent. above 12 to the regular treatment, thus: an ore containing say 25 per cent. of zinc would, in addition to the regular treatment, have charged against it an extra \$6.50. This is because zincy ores are more difficult to treat and cause extra loss of silver in the process.

The regular zinc smelters of Kansas, Missouri and Illinois will purchase any good clean zinc ore containing not less than 50 per cent. of zinc, but they will not pay for gold or silver in the ore and they will not take an ore which contains over 2 per cent. of lead or 8 per cent. of iron. Therefore ores fit for making spelter are rare in the silver ore regions.

In some cases where zinc and lead occur together fair separation can be made by concentration. On the other hand there are very rich ores which cannot be separated by concentration.

The American Zinc Lead Company, located at Canon City, Colo., purchase all classes of mixed zinc, lead, gold, silver and copper ores, paying for all the value in the ore and charging the same for treatment that other smelters charge without adding a penalty for zinc, no matter how high it runs. They do not, however, pay anything for the zinc unless it runs 40 per cent or over.

These works have been in continuous operation for six years and have handled many thousands of tons of zincy ores which otherwise would have found no market. Under Mr. Bartlett's patents the zinc and lead is extracted and converted into pigment, which is largely used as a substitute for white lead, while the gold, silver and copper is extracted without loss and sold in the form of copper bullion. As the company own their patents no other similar works exist. The works are very large, covering some twenty acres of ground and are fitted up to handle a large tonnage of ore. The same company own the New Mexico and Arizona Smelter at Hanover, N. M., near Deming. All classes of low grade ores, with or without zinc, are purchased at this smelter, which is used as a feeder for the Canon City smelter. They do not, however, purchase heavy lead ores. At the Canon City smelter the management very kindly offers to test, examine, assay and report on any refractory ore which may be sent them free of expense, if the freight or express is prepaid.

## DODGE MINING MACHINERY COMPANY.

## DODGE'S IMPROVED GIANT ROCK BREAKER.

In presenting the "Giant Rock Breakers," we beg to call attention to the great durability of their wearing parts.

One of the heaviest items in the expense of maintaining rock-crushers has been that of replacing the jaw-plates. The pin-plates are of cast steel, studded with pins of a special steel, which is tempered carefully with reference to their use in the crushers.

These pins, when first inserted, are left flush with surface of the plates, but the plates being softer than the pins, wear away more rapidly and leave the pins projecting. These improved plates last many times longer than any other jaw-crusher plates known.

Attention is also called to the self-adjusting journal boxes, held in place by steel springs, taking up all lost motion in pitman when the eccentric is worn out of round.

This improvement allows the rock-breaker to run at a greater speed with more safety and ease than is otherwise possible. Without this improvement of the springs on the eccentric boxes, the wear is all on one-half or side of the eccentric, and in consequence, a pounding is heard in the eccentric box soon after the machine has been at work, which in a short time pounds the babbit metal out of the journal boxes; making high speed impossible.

These new improvements, which are common to both Dodge and Giant Rock-Breakers, not only insure longer life to the wearing parts, but also a more economical application of the power to the work.

## THE MAMMOTH 15X20 GIANT ROCK-BREAKER.

By using this rock-breaker, a great saving of labor is effected, as it does away with the

sand testimonials could be had approving of the merits of this breaker. Valuable improvements have been applied to this machine in the last two or three years, which make it perfect in every respect.

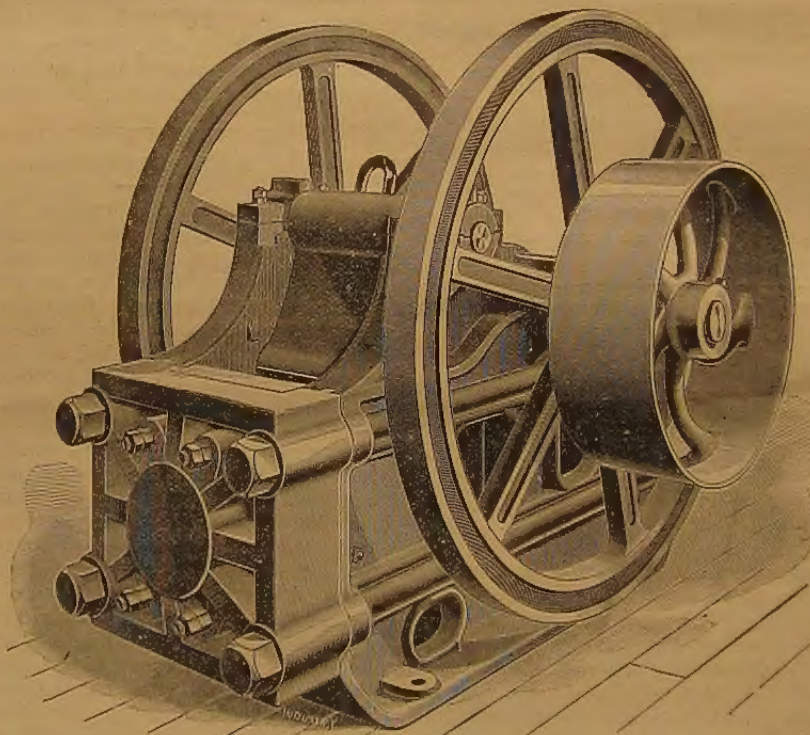
## THE DODGE IMPROVED ROCK-BREAKERS

Should be ordered when fine crushing is desired. The system of construction provides in this Breaker for ready, positive adjustment for finer or coarser particles as desired. They make No. 2 Breaker in sections, at extra cost, so that it can be carried on mules; No. 3 can be packed on mules without cutting. They carry all the above sizes in stock, and are prepared to furnish them at short notice.

The Dodge Mining Machinery Company also manufacture

## THE DRY JIG.

This jig is especially adapted to oxides, carbonates and chlorides, and where water is scarce, the jig only requires one-half horse power, and weighs 2000 lbs.



DODGE'S IMPROVED GIANT ROCK BREAKER.

necessity of sledging large pieces of hard rock to the size required for the ordinary breaker. This machine will handle very large and hard rock, crushing it fine enough for the mill, and at the same time doing a vast amount of work.

## IN THIS ROCK-BREAKER,

There are three plates on the swinging and on the stationary jaw; this gives six changes of the plates; changing the plates at the top of the jaws to the bottom of the jaw and turning them upside down for new wearing surfaces; in all rock-breakers the wear is mostly at the bottom of the jaws, and unless the plates can be changed or turned upside down, so as to wear the plates out, there will be large loss of metal.

For crushing road-metal or macadam, the Giant style of rock-breaker has no equal.

## THE DODGE ROCK-BREAKER

Is known throughout all the mines; a thou-

## THE CONCENTRATOR JIG,

Made by the Dodge Company, is round and overcomes many of the difficulties met with in the old style jig. This jig weighs about one ton.

## THE SLIME CONCENTRATOR

Is constructed for concentrating fine crushed ores and to act as a slime machine in connection with jigs used for concentrating the coarser grades of ores. It takes very little power and attention, is quickly and easily set up, and with very little expense, saving the concentrates or mineral clean. The weight of the Slime Concentrator is about 2000 lbs.

## THE DODGE DISTRIBUTOR

Is becoming very popular. It divides equally the sand or pulp and water as they come from the mill on the way to the concentrators. In cases where a mill feeds two or more lines



of concentrators, adjustable diffusing guides are employed; but these cannot be relied upon, because, by clogging, one concentrator may be supplied with sand and another with water, but with the present machines the pulp is swept over gratings or perforations in the bottom of the revolving pan, uniformly mixed, and is then cut out by dividing plates or diaphragms, and is thus separated into two or more equal parts of sand and water that flow out of spouts at the bottom and to two different lines of concentrators. In this manner concentration is equalized and uniform, producing better work and an increase of capacity. Weight 520 lbs.

#### DODGE'S SEPARATOR BOXES

Are a great improvement on the old separator. This improved box, by hydraulic selection, discharges the fine material at the top and the coarser material at the bottom. The weight of the box is 370 lbs.

The Dodge Mining Machinery Company have taken all the offices formerly occupied by the Union Iron and Shipbuilding Works, on the corner of First and Mission streets, in the Donohue Building. The location is one of the best in San Francisco, and the well-known reputation of all the machinery of the Dodge patent insures a large business for the house in San Francisco.

## CORRESPONDENCE

### CALIFORNIA.

HEALD, CALIF., (Koehn P. O.),

May 8, '96.

EDITOR JOURNAL:—The new Heald mining district was organized April 27, and 16 locations have already been filed for record.

A party of five from Bakersfield discovered and located a good mine, May 1st, and have returned to Bakersfield to get a five-stamp mill.

Mr. A. F. Bland has purchased a brand new five-stamp mill, which will arrive this week, and be used to crush ore from the Heald mine—two hundred tons of which are ready to be crushed and plenty more in sight.

A contract was made this week to have one hundred tons of coal mined, which will be sold at \$4.00 per ton at the mine. Coal sells at \$2.85 per hundred pounds, and this new coal promises to be as good as the best.

One week ago, there was but one human being at Heald, now there are ten and twenty on the way.

The new store building is to be built of black slate blocks, with green-stone corners and cornice. The Recorder's office will be built of blocks of different colored quartz. Most of the houses, however, are and will be built of lava blocks, which float down from the top of Black Mountain. White sandstone, which overlies the coal, will also cut quite a figure, as building material.

With thousands of tons of rich ore in sight, plenty of good water, and the best coal ever found in California, this place promises to be a mining center.

F. H. Heald has located 160 acres of land in the desert lake, near Koehn P. O., where he expects to sack up and save soda, to be used in the mills which crush his ore. This mixture of soda and salt seems to rid the water of manganese oil, which is so plentiful in all the ore of this region.

Chas. Adams and A. Slaty, of Tehachapi, are prospecting the neighborhood and are

camped here.

John Thill, of Last Chance, expects to build an arastra and crush ore from his mine soon. This is an old-fashioned way of milling ore, but it saves all the gold except concentrates.

A good boarding house and restaurant are needed more than a saloon.

The road is being put in order from Heald to Mesquite Springs, where one of the new mills will probably be located.

OLD CORRESPONDENT.

### MEXICO.

TOPIA, DURANGO, May 3, '96.

EDITOR JOURNAL:—Professor J. M. Tierman is now in charge of the Gurney Mining and Milling Co. The former General Manager, Gilbert Gurney, has gone to Europe, to recruit his health, which has not been of the best since he got shot three years ago. It looks as if there would be no other changes made; J. M. Edwards still remains in charge of the mill.

Quite an excitement has been caused by the discovery of a well-defined ledge, four feet wide, pay streak six inches, running 300 ounces to the carga, (300 lbs.), about half a day from Topia. Although only discovered a few weeks ago there are 500 people employed.

Pedro Rementerin, J. M. Edwards & Socios have four pertenencias, joining which they mean to work for all there is in them. The ore carries about  $\frac{3}{4}$  ounces of gold to the ton.

Mr. Wentworth, late of South Africa, is now prospecting round here, and has already bonded a mine belonging to Mr. Gurney.

An old Mexican miner came into camp the other day, says he has two tin mines and one gold prospect that goes six ounces to the ton. It is very likely true, as, undoubtedly, tin exists in this State.

News comes from Culiacan that Fortunato Vega has sold his gold property in the Quebrada Honda, for \$50,000, gold. This property is only 40 miles from Culiacan. An English company are the purchasers, and the writer knows the mine well, having formerly owned and worked the same. There is ore that assays as high as 100 ounces to the ton.

Further north are the famous mines of San Jose de Garcia and the rich gold district of La Fuerte.

The State of Sinaloa is slowly but surely becoming a great gold producer; not long hence, she will be one of the biggest in Mexico.

J. M. E.

## Miscellaneous Mining News.

### ARIZONA.

The old Belcher mine in the Big Bug District and one of the old bonanzas of Arizona was sold to some eastern people in Prescott last week.

The new ten-stamp mill on the Humburg gold mines is nearly completed.

The Board of Directors of the Mining Exchange in Prescott has decided to issue a call for a mass meeting of all the citizens of Yavapai county to discuss the mining interests of the county.

The Patterson mill in Gold Basin was destroyed by fire on the afternoon of April 30th, and the origin of the fire is unknown.

In 1894 Mohave county, with 250 men at work in the mines, produced nearly \$1,600,000 in gold and silver.

Over a mile of the Congress branch railroad has been graded and a lot of ties have been received and will be placed in position soon.

The output of copper in Bisbee continues and the full quota of men are working daily.

William Osborn has bonded his group of copper mines to Colin Timmins of Prescott for \$40,000, with a small payment down. The bond is for sale and development of one of the best copper groups in the territory. The lease is for twelve months.

### ARIZONA SAMPLING WORKS.

The following lots of ore were worked at the sampler last week:

William Roe, seven tons from Stockton Hill.

McMahon & Larkin, six tons Nighthawk mine.

William Koshland, two tons from Rawhide.

Charles Wilkins, one ton from Green Linnet mine.

Frank Martinez, one ton from White Hills.

Frank Arbuckle, five tons from Samoan mine.

James Bone, three tons from Great West mine.

C. E. Sherman, two tons from Sherum Peak.

John Barry, six tons from Connor mine.

George Miller, one ton San Francisco district.

A. N. Eaton, one ton White Hills.

John Lynch, small lot.

Shipped one car load to Pueblo.—*Miner.*

### KINGMAN SAMPLING WORKS.

The following is last week's report of the Kingman sampling works:

R. M. Rouise, one and one-half tons from Nighthawk.

G. Koster, small lot from Nighthawk.

Jamison & Co., two tons from Cummings.

Telesfore Lopez, two tons from Norma.

M. R. Ruiz & Co., one ton from Cross Fraction.

William Debeque, two and one-quarter tons from Garfield.

Chris Larsen, small lot from Norma.

William Risely & Co., one lot from Daisy.

Chidester & Sweeney, one-half ton from Silver King.

P. Caffery, one-half ton from Stockton Hill.

John Barry, eight and one-half tons from Sunlight.

P. W. Harrington, one ton from Cross Fraction.

Frank Dewey & Co., three tons from Prince Albert.

J. H. Doyle, one and one-half tons from Signal.

Shipped one car to Pueblo.

The Blakely five-stamp mill is ready to begin pounding ore.

Lake's Sampler worked on a car load of John Barry's ore Tuesday.

Sweeney & Chidester are down 280 feet on their lease on the Norma.

A car load of coal was hauled out to the White Hills Company this week.



Frank Dewey is in with three tons of high grade ore from the Prince Albert.

The ore receipts published in the samplers' statements this week amount to 56 tons.

Charles Sherman was in the first of the week with a lot of ore from his mine near Chloride.

The Mocking Bird mill remains idle while Messrs. Schofield and Stewart are developing more water.

Manuel Ruiz brought in eleven sacks of rich ore from the Cross Fraction at White Hills. It assayed 850 ounces in silver.

The Buckeye mine has a credit of more than 100,000 ounces in silver and 500 ounces in gold and plenty more in sight.

W. G. Kelly and Judge J. M. Murphy went out to Chloride Sunday. Mr. Kelly's purpose was to examine the Judge's mine.

A car load of carbonate ore from F. W. Theis' lead mine at Chloride was sent to Pueblo. It was taken from the 300 foot level. —*Our Mineral Wealth.*

Work will soon be commenced on some of the copper properties in the Tonto Basin belonging to E. E. Waru.

The case against the Copper Queen Consolidated Company, on which the jury disagreed last September, is to be retried. The Government brought suit to recover \$30,000 which they claim was due for Government timber used by the Copper Queen Company.

The new converter at the Detroit company's works, under the supervision of Mr. James Conway, is being erected as fast as the machinery arrives. This plant, which is used to convert the matte into copper, is the fifth or sixth one built in the United States.

A big and rich find is reported near Prescott. The ore is said to assay over \$40 per ton, gold.

The Morning Glory mill and mine have changed hands and will now be operated by J. W. Brown of Prescott, who has a crew of men working on the property.

The great tunnel on the Hamilton-Poland mine in the Big Bug district, Yavapai county, is now in nearly 1,000 feet. With other workings this tunnel shows a continuous ore body of over 2,000 feet, the rock high in grade, averaging \$65 per ton, silver predominating. —*Journal Miner.*

Latest reports from the Congress mine are to the effect that a crosscut drift is to be run from the 1,600 foot level to tap a parallel ledge 700 or 800 feet distant. Work on the main shaft is also pushed with the same vigor. Burleigh drills are to be used in the crosscut drift and also in the main shaft. About one carload of concentrates per day is now the output from the forty-stamp mill. Much high grade ore is also shipped. When the crosscut drift shall have reached the parallel ledge, the mill capacity will be increased to 80 stamps, and the working force will also be greatly increased; the pay roll will then carry the names of about 600 men. The mine is said to be operating at a greater profit than ever in its history, and this is saying a great deal, as the Congress has been a great dividend payer ever since extensive work began on it. —*Courier.*

Another twenty-inch well is being put down at the La Fortuna mine, and an ample supply of water is assured.

A strike of richer ore than thus far taken out of the Pearce mine is reported to have been made last week at the 200-foot level of the bonanza. The ore is said to be literally sprinkled with gold, and appears to have opened into a deposit the extent of which is not yet known. All the ore of this mine carries a fair percentage of gold, in some instances very high, but this recent strike it appears runs higher in the yellow metal than any of the ore thus far extracted.

#### A COMING CAMP.

Goldfield has the Same Formation as Cripple Creek.

Those who have visited Cripple Creek, Col., and Goldfield, but forty miles east of Phoenix, are authority for the statement that the formations are identical. D. J. M. Ford of this city, and Wm. Bolitho of the Mammoth mine, are both thoroughly conversant with both camps. It would be difficult to tell, with equal development, which is the better gold producing region, but many think the Arizona camp has the best of it.

Hall & Sullivan have gone the deepest, but 300 feet, and they have a good bank account, besides paying for both mine and mill. They are now in good ore and running ten or twenty stamps as they hoist by horse power.

James Sears has all winter worked from twenty to twenty-five men and has been running the Pomeroy mill. Goldfield is coming to the front, and before many years it will be one of the best camps in the west. Were it in Colorado today miners thicker than chico brush would cover the camp and deep shafts would be sunk. —*Gazette.*

#### CALIFORNIA.

##### SAN DIEGO COUNTY.

Messrs. Brown and Lester have located southwest of Escondido the Big Betsey mine.

A new strike has been made in the N. G. mine in the Rice district only a few miles from Warner's ranch.

Col. C. C. Lane, formerly of Tanama, with his sons are opening up a number of rich prospects on the desert east of Salton. The Colonel is a worker and knows a mine when he sees it, and it is hoped by his many friends in this section he will be successful in his new field.

The Boulder company, who have mines about forty miles northeast of Salton, failed to get water in their first well, which they sunk to a depth of 430 feet. They have encountered it in plenty at 71 feet in the last well sunk, about ten miles distant from the first one, and are now putting in their mill at that point.

Wellborn and Fredericks are building a stamp mill at Hendsch's old camp. A large number of small but rich veins have been encountered in that district.

##### SAN BERNARDINO COUNTY.

A report has reached this office that since the Lane syndicate has taken hold of the Sam Bayard property near Holcomb Valley it has caused some attention to be directed there. It is now reported that Lucky Baldwin will probably reopen the Gold Mountain property,

which had a large mill working on it twenty years ago, but which was burned some years ago. There is a mountain of low grade gold ore at the Gold Mountain property.

It is reported on reliable authority that the Sidewinder mine has been sold for a large price. The sale has been pending for some time, and the Oregon people who purchased it seem to think they have value received for their money.

#### A PROMISING MINE.

Developments in a Claim Just Beyond West Riverside.

W. A. Hayt, who in company with A. S. White, owns a promising quartz mine in the hills just beyond West Riverside, has on exhibition at his office a quantity of sample ore taken from the mine, which bears every indication of being good ore.

They have sunk a shaft seventy feet in the mine, when operations were cut off, owing to too much water. At the bottom of this shaft the ledge is four feet thick and growing wider. The ore averages about \$12 a ton.

They are now engaged in running a tunnel in from the mountain side to tap the ledge some distance below the bottom of the present shaft, and when this is completed they will be in shape to prospect the ledge to a much greater depth.

Expert miners who are well acquainted with leading quartz mines in the country, pronounce the mine a good one; one that is sure to improve both in richness and thickness of ledge as depth is reached.

Messrs. Hayt and White are not making much fuss over the mine, but are going quietly ahead with the work of development. It is to be hoped their efforts will be rewarded with the discovery of another Comstock. —*Enterprise.*

#### INYO COUNTY.

##### Mismanaged Mining.

In vast southeastern Inyo there are mines and mining operations which few residents of this part of the county know anything about. And in that region of mountains and deserts it is somewhat difficult to describe the location thereof, no existing map showing anything about them. It is also hard to describe some of the idiotical mismanagement of good money in their fool attempt to get money out of the really magnificent mines.

At the Mineral Ranch (the Anthony mines at Pleasant Canyon in the Telescope or Panamint mountains) a Los Angeles company, bought the Golden West, erected a 5-stamp steam mill and concentrator under the mines, which are on an almost overhanging cliff 1400 feet in height. In the comparatively smooth canon below they placed the mill part of the plant, six or seven hundred feet above a stream of water flowing four to six inches. Then they sunk a shaft above the mill and drifted around the bed of the canyon to get water, failing in which they laid pipes below and put in a small boiler and pump, with which to raise it. That failed, and they placed a larger boiler and pump, which also fails. It has been shown by tests that the ore carries \$45 and upward, gold, to the ton, but is not free milling, and it is understood that what ore they did "work" produced about \$5 per ton. However, an assay office forms no part of the outfit.

About one-fourth of a mile below is a natural mill site, under the flowing water, and in line of a practicable tramway from the mines. The company has expended \$14,000, at least \$10,000 of which has been wasted. —*Register.*



## KERN COUNTY.

The Devil's Den mining district has been formed in the northern part of Kern county. L. Lucier was appointed recorder. The following rules will govern the district: All locations must be distinctly marked on the ground so that the boundaries can be traced, with due regard to the U. S. surveys. Records of all claims must be kept by filing copies of the claims with both the recorder of the district and the county. All claims must be named and work of the value of \$100 must be performed each year. All claims legally taken up and held six months prior to the filing of these articles shall remain in full force and effect. This is a placer mining district and it is stated that it is formed for the purpose of working the oil deposits in the Antelope valley.

## RIVERSIDE COUNTY.

Affairs at the Santa Rosa mine are in a fair way to be settled at an early date. R. P. Winters, assignee of the mine, has paid all the indebtedness that accrued while he was manager, and everything will be settled in a short time.

The Granite mine looks well. A large body of ore has lately been encountered on the lower level. Altogether, the prospects are good for the districts.

Returns from a car of ore from the Granite mine in the Chucawalla Mountains, shipped to Selby Smelt and Lead Company, of San Francisco, gave \$130.42, gold. The pay ore is forty feet wide.

The Eagle Mountain mining district, forty-five miles north of Walters station, is being thoroughly prospected now.

Messrs. Murray & Rigloi are working on a property, known as the Sunrise. They have an open cut which exposes the vein.

Messrs. Stevens, Moore, Beach & Harris, owners of the Iron Chief and Queen Annie, are sending ore to McGrath's arrastra, at Cottonwood Springs, to be worked.

Peter Leonard is working the Gold Blossom, and has a tunnel 58 feet long. The property has been bonded to Messrs. Wilson & Coons, and will probably be worked extensively in a short time.

W. H. Bradley, of Los Angeles, has one shaft 100 feet deep, and two others, one 60 and the other 15, on the Messenger. He has a vein that averages 4 feet, and has milled \$35.00 per ton. There is a great deal of prospecting going on in and around Eagle Mountain, and the outlook is very bright.

It is reported that the Good Hope Mining Company has secured a judgment of \$330,000 against J. M. Sigafus, who sold them the mine.

A mortgage was placed on record last week, covering the Good Hope Mine, as well as all the improvements. The mortgage was given by Henry B. Johnson.

Very exciting reports have been sent from Elsinore concerning a new discovery west of the lake, no reliable details have yet reached this office.

## LOWER CALIFORNIA.

## That Arizona Mine.

Mr. N. H. A. Mason arrived from San Francisco Tuesday morning, and will proceed to the Agua Dulce to look after his mining property there. For the past few months Mr. Mason has been in Nevada, where he has a large stock ranch, and he states that they have had a very favorable winter in the northwest. In speaking of C. D. Lane's property over in Arizona, which is attracting so much newspaper attention at present, Mr. Mason said that when he was there the shaft was down 200 feet, with a number of drifts. No work has been done in the mine since, as they are getting a stamp mill and water on the property.

There is an immense deposit of ore, and from careful estimates made at that time the ore in sight was placed between \$500,000 and \$800,000, Mr. Mason's estimate of \$500,000 being the lowest. The development work has been done in such a manner as to admit of an approximate estimate of the ore body to the 200-foot level. A test of this quartz made in the Utica mill went \$160 per ton. He states that he is satisfied some of the rock will mill fully \$500. The deposit or vein decreases in size with depth, though it greatly increases in richness, and at the bottom of the shaft is twelve feet in width.—*Lower Californian*.

## NEW MEXICO.

The properties of Bell & Stevens at Pinos Altos, which are among the best in the southwest are running full time, the main property being worked now in the south extension of the Pacific. The ten-stamp mill is running steadily on \$20 ore.

## Hermosa.

Jack Burke and J. C. Plemmons visited the Palomas Chief and were highly pleased with what they saw.

Juan Rocha has a fine lead of 300-ounce silver ore which he is following on the Palomas Chief.

The Smith jig continues to produce high-grade concentrates from the Pelican mines.

Adams and Young have a 600 ounces silver to the ton pay chute on their lease on the Palomas Chief.

John Kendall and son are following a small though rich pay streak in their lease on the Palomas Chief.—*Black Range*.

Felter & Burgerot shipped a carload of ore from the Modoc mine from Las Cruces to Pueblo, Col., last week.

## New Mining Company.

The Iron Queen mining company has been incorporated by Edward Lembke, George Hofheins, Edward L. Medler, Clarence W. Medler, of Albuquerque; Myrtle L. Cole, Edward Smith, of Bland. Objects, acquiring and operating mines and reducing ores; capital stock, \$1,000,000; life, forty-nine years; principal place of business, Albuquerque; directors, same as incorporators.

The opening exercises of the New Mexico School of Mines occurred at Socorro May 8th. Professor Hiram Hadley delivered the opening address, followed by others of note. Two degrees were conferred, one Engineer of Mines

on Alvin Offen, and Bachelor of Science on Leo R. A. Suppan.

The San Marcial Lode mine in Water canon, owned by Pete Lujan, Ed LeBreton and Guy McClaffan, is in a fair way of being sold. An Eastern capitalist is endeavoring to purchase a group of claims located there, and the Lode is among the number.

Output of Hillsboro gold mines for the week ending Thursday, May 7th, 1896, as reported for the *Advocate*:

	Tons
Wicks Mine.....	80
Richmond.....	95
Happy Jack.....	55
Animas Peak and Cement mines.....	75
Catherine, Key West, Eldorado, Garfield and Bull of Woods.....	80
Prosper .....	75
Total.....	460

Total output since Jan. 1, 1896—8,299.

## MEXICO.

Monterey is rapidly developing as a mining center. During the past week mining properties from Zacatecas, Durango, Chihuahua and Coahuila, not to say numerous ones from the Nuevo Leon districts, have been offered in this market, and the best of them will undoubtedly be promoted here. Monterey will become the Denver of Mexico.—*Monterey Times*.

There is an unconfirmed rumor floating about that the Promontorio mine, in Durango, property of Maximilian Damm, was about to be sold to an English syndicate. An English expert named Graham has made a report on the property. The Promontorio is the biggest producer in Durango, and is shipping now an average of 28,000 sacks per month. Mr. Damm has refused \$2,000,000 for the mine.

Mining is picking up about Zacatecas. Reduction works are to be put up at the San Cristobal mine and a 20 stamp mill. The San Luis del Oro is also putting up reduction works and there is a general activity in the gold district west of the railroad. Another five-stamp mill is also on the ground in that city, and is being put up by the Gates Iron Works.

A ten-stamp customs mill has been put up at the Picate, in Zacatecas, and is running out an ounce and a half of gold and twenty ounces of silver per ton daily. Joe Fallen is in charge of the mine and mill.

It is reported that the Guggenheims contemplated rehabilitating the Tecolote property near Parral, in Durango. There is a large concentrating plant now on the grounds. The Tecolote was formerly owned by Geo. Storke. From present appearances, it looks like Parral was preparing for a good sized boom.

A stage coach is now making regular trips from Banning Cal., to the Virginia Dale, and Twenty-nine Palms district for the convenience of miners and others, in visiting the gold fields in that region.



## GENERAL NEWS

## PATENTS.

Messrs. Hazard & Townsend, solicitors of patents, room 9 Downey Block, Los Angeles, California, report the following recent patents of interest to mining men:

April 28.—No. 558,978. Ore Concentrator. J. W. Nesmith, Denver, Colorado, Assignee to the Colorado Iron Works, same place.—The belt drum of the concentrator is secured to a crank, the outer end of which is attached to a swinging arm, which is secured upon one side of a power wheel and extends across the axis thereof, to thus suspend the plate drum axially with relation to the power wheel, but to allow it to move toward and from such power wheel while rotating.

April 28.—No. 559,170. Pan and Roller Mill. Nichola Fossati, Smith's Flat, California. Two grinding wheels are suspended above and are rotated by contact with a revolving pan having a closed center and screen covered openings in its outer rim.

April 28.—No. 558,994. Rock and Coal Drill or Augur. J. T. Snyder, Luzern, Pa.—A central stem is provided with cutters at its lower end, and two twisted blades or flanges surround the stem, one extending to the front end of the body, and the other terminating short of such end to give clearance space at the rear of the cutters.

April 28.—No. 559,055. Stamp Stem Guide for Stamp Mill. C. A. Fargo, Marysville, Mont.—The guides are each made in two pieces having tapering ends, and tapering wedges are arranged to be drawn between the sides to force the guides together and take up the wear.

May 5.—No. 559,628. Coal Chute. W. W. Sperry, Philadelphia, Pa. A chute extension composed of a number of loose sections having tapering sides, a slot formed in the bottom of each section and loose rivets connecting the slot of one section to the slot of the next, whereby the chute may be swung from side to side to discharge the coal where wanted.

May 5.—No. 559,453.—Apparatus for Saving Metallic Fumes. W. W. Iles, Denver, Colorado. The fumes are passed through alternating series of vertical pipes which are surrounded by a cold air conduit.

May 5.—No. 559,593. Process of and Apparatus for Extracting Gold from its Ores. J. G. Murphy, Middletown, Conn.—The apparatus consists of a pulverizing cylinder revolving on hollow trunnions both flaring in the same direction and suitable appliances for feeding the ore into and conducting it from the cylinder through the terminus. The process consists in reducing to an impalpable powder by gentle attrition in a revolving cylinder, the mass of ore, permitting the pulverized material to escape by overflow, grinding the powder in an amalgamating pan with water only sufficient to form a paste, then washing the pulp into a settler.

May 5.—No. 559,779. Ore Crushing Machinery. G. Johnson, San Francisco, California, Assignor to the Risdon Iron and Locomotive Works.—This patent is for means for adjusting an overflow guard plate in front of the discharge screen of the pan, to regulate the discharge to suit the height of the dies as they wear away.

May 5.—No. 559,614. Extraction of Precious Metals. G. A. Schroter, Denver, Colorado, Assignor one-half to T. Louthian, same place. Crushed and chloridized ore is leached with a concentrated solution of brine containing one-half to four per cent. approxi-

mately of a soluble salt of copper. Especially adapted for silver ores.

May 5. No. 559,619. H. C. Sergeant, Westfield, New Jersey, Assignor to the Ingersoll Sergeant Drill Company, New York, N. Y. Rotating Device for Rock Drills.—An improvement in the ratchet device for rotating rock drills, or locking them against rotation.

May 5.—No. 559,433. Rock and Ore Pulverizer. C. C. Birum, Ultey, Wis., Assignor to The Green Lake Granite Co., Chicago.—An improvement in the mode of fastening a removable rim onto a crushing roller.

Copies of the above patents will be furnished for ten cents each (no stamps) by addressing the "Commissioner of Patents, Washington, D. C.," giving the date, number, name of inventor and title of invention of each patent ordered.

## PERSONAL-NEWS ITEMS

A. R. Meyer, president of the Consolidated Kansas City Smelting and Refining Co., of Argentine, Kansas, was entertained in the City of Mexico, Mexico, May 4th, by Consul General Crittenden.

Charles Hall, E. M., has returned to the City of Mexico, Mexico, from his trip to Guerrero, Mexico.

W. B. Nichols, of the Annie mine, at Alamo, Lower California, was in Ensenada, Lower California, last week.

W. W. Rose, manager of the Walter Pierce Oil Co., with headquarters at El Paso, Texas, was one of the callers at the JOURNAL office last week. Mr. Rose was formerly connected with mining in Colorado.

Messrs. Munson & Davis have returned to their mines in Mexican gulch, Lower California.

C. C. Ensley will in future have charge of the affairs of the Climax mine, at Agua Dulce, Lower California.

Ex-governor Alexander A. Shepherd has returned from his trip to Washington, D. C., and can now be found superintending his mammoth mine, at Batopilas, Chihuahua, Mexico.

Messrs. Chapman and Black have left the Perris district, California, for Cripple Creek, Colorado.

Marion Aubury, E. M., has returned to San Diego, Cal., after a short visit to Escondido, Cal.

Messrs. Burns Bros. have returned to Riverside, Cal., from a prospecting trip of several months; they made several locations, one and one-half miles west of the Lost Horse mine, in the Pinon mountains mining district, Riverside County, Cal.

W. O. Frost has gone to Nevada, where he will probably remain for some time. Mr. Frost is well-known in the south-west.

H. H. Logan, of Phoenix, Arizona, has returned from Sonora, Mexico, where he has been attending to his mining interests.

Wm. Cooper arrived in Tucson, Arizona, last week, with some of the best copper ore ever seen in Arizona.

Hon. Nick Galles was in Prescott, Arizona, May 5th.

F. A. Garbutt left for the Altura mine, San Bernardino County, yesterday, where he will start the mill for the company.

J. Francis, E. M., manager of the Tucson Smelting Co., has been on a trip through the mining country in the interest of his company.

Henry Murphy has returned to Prescott, from the Congress mine, and reports it the greatest mine in the west.

B. F. Wood arrived in Phoenix from Prescott, last week.

Col. J. A. Fleming, of Phoenix, Arizona, has been on a mining trip to Globe and other camps.

Messrs. Kasser and Crane have returned to Phoenix, Arizona, from their trip to the Deer Creek coal field; they report the coal of good quality and plenty of it.

M. H. Dodge, of Cleveland, Ohio, arrived in Prescott, Arizona, May 7th. He is interested in mining properties in Arizona.

C. L. Hall, superintendent of the Mammoth mine, at Goldfield, was in Phoenix, Arizona, May 6th.

Wm. Llewellyn, of the Llewellyn Iron Works, of Los Angeles, Cal., and one of the most energetic young business men on the Pacific Coast, took a trip to Phoenix, Arizona, last week, on business.

Mr. Thorndyke has returned to Phoenix, Arizona, from his prospecting trip.

R. R. Wheeler, the best mill man in California, has gone to Havilah, Kern County, to look after a mining property there.

Messrs. McClosky, of Colorado Springs, have been on a prospecting trip to Nogal, Lincoln County, New Mexico.

W. S. Standish, of Las Vegas, N. M., took a trip to Lake Valley, New Mexico, to look after his mining interests there.

C. C. Fitzgerald, who formerly operated the International Smelter, at El Paso, is en route for Crittenden, Arizona, where he has some large mining interests.

J. B. Dennis drove up from Perris, Riverside Co., Cal., May 13th, and gave the JOURNAL a pleasant call.

Clarence King, E. M., arrived in Los Angeles, May 13th, from the Southern part of the State, where he has been investigating some mining properties.

Mr. R. G. Eckis, a prominent mining and mill man, of Utah, recently of Kingman, Arizona, was a caller at the JOURNAL office on the 14th inst.

Robert F. Harrison, of Denver, Colorado, paid the JOURNAL office a call, May 14th.

P. Eysenhardt, of Colorado, recently of San Diego, was a caller at the JOURNAL office on the 13th inst.

Mr. W. P. Gibson, of this city, was a caller at the JOURNAL office, May 9th. Mr. Gibson is rapidly becoming interested in the mining industry of Southern California.

W. E. Logan, a millwright, was a caller at the JOURNAL office, May 4th.

D. T. Cahill, of Colorado, was a caller at the JOURNAL office, May 11th. Mr. Cahill has been on a five months' trip through Western Arizona and Southern California.

Adin Alexander, of Southern Oregon, arrived in Los Angeles, May 9th.

Judson Bent, of San Diego, was among the visitors at the JOURNAL office, May 11th.

A. E. Wilson, one of the old-time miners from the south-west, was making his headquarters at the JOURNAL office last week.

Peter Murray, of Eagle Mountain, Riverside Co., was in Los Angeles last week.

Messrs. Borrest & Keeler, of the Eagle Cliff Mining County, gave the JOURNAL a call this week.

J. W. Martin, of San Bernardino County, is on a business trip to Los Angeles.

S. M. Kelsey, of the Lost Horse Mine, was among the visitors at the JOURNAL office, May 11th; he left for his mine, May 13th.

Judge Geo. E. Otis, of San Bernardino, and interested in the Altura Mine, was a caller at the JOURNAL office, May 11th.

Judge John B. Campbell, of San Bernardino, was a visitor at the JOURNAL office, May 13th.

C. A. Shaw, an old friend of the editor of the JOURNAL, was a caller at our office, May 4th.

E. B. Smith, of San Bernardino, and manufacturer of the "Smith's Improved California Mill," was one of the callers at the JOURNAL office, May 4th.

F. R. Tibbetts, of Kernville, Kern Co., Cal., was a caller at the JOURNAL office a few days ago.

J. D. Thomson, of Pasadena, and part owner of the Desert Queen mine, in Riverside County, was among the callers at the JOURNAL office, May 5th.

A. F. Judson, of Colton, called at the JOURNAL office, May 13th. Mr. Judson has long been interested in the mining industry of Southern California. He is now interested in the Virginia Dale mining district.

C. F. Carns, formerly of Salt Lake City, Utah, gave the JOURNAL a call, May 13th.

Gus Osman, of Mojave, was a caller in the JOURNAL office, May 2nd.

Col. H. L. Pickett, of Silver City, N. M., was among the callers at the JOURNAL office, May 4th. The Colonel is an old-timer in the south-west, and intends to locate in Utah, where he will practice law, making a specialty of mining law.

## OBITUARY.

H. L. Van Nostrand, a prominent mining man, and formerly superintendent of the Cedar Valley Gold and Silver Company's mines, near Kingman, Arizona, died, May the 2nd, at San Diego, California, after an illness of two months. Denver and New York papers please copy.



At a regular meeting of the Los Angeles Mining and Stock Exchange held May 6th, the following by-laws were adopted:

## BY-LAWS

### Los Angeles Mining and Stock Exchange

## BY-LAWS

### ARTICLE I.

#### NAME OF THE CORPORATION.

The name of the corporation as provided in its Articles of Incorporation is THE LOS ANGELES MINING AND STOCK EXCHANGE.

### ARTICLE II.

#### OBJECTS OF THE CORPORATION.

The objects for which this Exchange is formed are to encourage and advance mining industries generally; to interest capital for the development and purchase of mines and mining properties and in aid of those who may require financial assistance in developing their own mining properties; to maintain a Stock Board for the listing, calling, purchase and sale of mining and other stocks and bonds in the interests of its members; and to maintain a Bureau of Mining Information where reliable data, reports, descriptions and statements can be obtained in regard to bonds, stocks, mines or prospects listed with said Exchange, also to establish a Clearing House in connection with said Exchange.

### ARTICLE III.

#### GOVERNMENT OF THE CORPORATION.

The government of the affairs of the Exchange is vested in a Board of Directors composed of nine members; those selected for the first year being designated in the Articles of Incorporation as required by law; their successors to be elected by the members of the Exchange in the manner hereinafter provided.

### ARTICLE IV.

#### OFFICERS OF THE CORPORATION—ELECTION THEREOF.

SECTION 1. As provided by the Articles of Incorporation, a Board of nine Directors shall be elected by ballot on the fourth Thursday in April of each year, at eleven o'clock A. M. A majority of the votes cast shall elect, and at least a majority of the said Board so elected shall be residents of the City of Los Angeles.

SECTION 2. The officers of the Exchange shall be a President, a Vice-President, a Secretary and a Treasurer, all of whom shall be elected by a majority of all the Directors at the first meeting following the annual election of Directors, and who shall hold their respective offices for the term of one year, and until their successors are duly qualified. In case of a vacancy in any of said offices, it shall be filled at the next meeting of the board.

All officers, except the Secretary and Treasurer, shall be elected from the board of Directors.

### ARTICLE V.

#### BOARD OF DIRECTORS.

SECTION 1. Five members of the Board of Directors shall constitute a quorum for the transaction of business.

SECTION 2. The Board of Directors shall meet regularly on the second and fourth Thursday of each month at 3 o'clock P. M., and at such other times as they may be called together. The President may call special meetings of the Board at any time on his own motion, and he shall call such meetings whenever requested

by three members of the Board, or in the absence of the President and Vice-President, any three members of the Board may call a special meeting by announcement from the rostrum, at least one day's notice being given of such meetings.

SECTION 3. Any member of the Board of Directors who, except in case of illness or leave obtained from the presiding officer, shall absent himself from the Board during six consecutive regular meetings, shall cease to be a member thereof.

SECTION 4. At the last regular meeting of the Board of Directors in March of each year, they shall appoint a nominating committee consisting of 7 members of the Exchange whose duty it shall be to receive nominations from members of the Exchange of candidates for Directors for the ensuing year, and report within 10 days a list of the names of at least 18 suitable members of the Exchange, from which list 9 Directors shall be elected at the annual meeting following, which shall take place on the fourth Thursday in April. A copy of the above report, together with a copy of any proposed amendment to these By-Laws, as hereinafter provided, to be voted for at this annual meeting, shall be mailed to the last known address of each member and also posted on the bulletin board of the Exchange at least 10 days before the annual election.

SECTION 5. They shall incur no indebtedness exceeding in the aggregate the sum of \$250 without consent being given by a majority vote of the members of the corporation present at a meeting called for that purpose.

SECTION 6. They shall have full power to try all offenses against the laws of the Exchange and all charges against members on due presentation thereof, and their decision in all cases shall be final.

They shall fix the amount of the salary that shall be paid to any officer or employee of the Exchange; shall have power to terminate the contract of the Exchange with any such salaried officer or employee, for cause shown, and declare his office vacant, and to fill such vacancy.

SECTION 7. They shall have power to fill any vacancy that may occur on the Board by ballot at any meeting.

### ARTICLE VI.

#### STANDING COMMITTEES.

SECTION 1. On assuming the duties of his office, or as soon thereafter as possible, the President shall appoint the following standing Committees for the year, subject to the approval of the Board of Directors:

First. An Executive Committee, to consist of three (3) members, in addition to which the President and Vice-President shall be members ex-officio.

Second. A Finance Committee to consist of three (3) members, in addition to which the President and Vice-President shall be members ex-officio.

Third. A Committee for Listing Mining Stocks and Properties, to consist of five (5) members.

Fourth. A Committee for Listing of other Stocks and Bonds, to consist of five (5) members.

Fifth. An Arbitration Committee, to consist of three (3) members.

Sixth. A Membership Committee, to consist of three (3) members.

Seventh. A Committee on Rules, consisting of five (5) members.

SECTION 2. All except the Chairmen of the foregoing Committees shall be taken from the membership of the Exchange; all chairmanships must be filled from the Board of Directors.

No action of any Committee shall be binding until adopted and approved by the Board of Directors.

### ARTICLE VII.

#### DUTIES OF OFFICERS.

##### PRESIDENT.

SECTION 1. It shall be the duty of the President to see that the provisions of the By-Laws and Rules are enforced, and to exercise a general supervision of the affairs of the Exchange. He shall preside at the meetings of the Board of Directors, and at all meetings of the Exchange.

SECTION 2. In the absence of the President, the Vice-President shall perform all the duties pertaining to the office of President.

##### SECRETARY.

SECTION 3. It shall be the duty of the Secretary to keep minutes of the proceedings of the Exchange; to record the same in a book kept for that purpose; to take charge of the books and papers and to conduct the correspondence of the Exchange. He shall keep a record of the opening and closing of the transfer books for dividends, elections, etc., of the various corporations whose stocks are dealt in on the Exchange; the amount of such dividends, and when payable; and post statements of the same on the bulletin board from time to time. He shall also keep a ledger containing the names of all the members, with date of their admission, by succession, or otherwise and all transfers of memberships; a list of suspended members, and an account of all membership fees and dues; and of all fines imposed, and collect the same; pay over to the Treasurer all moneys received, and make a report to the Board of Directors at the first regular meeting of each month.

He shall perform such other duties as the Board of Directors may regard as properly pertaining to his office.

##### TREASURER

SECTION 4. It shall be the duty of the Treasurer to receive and take charge of all the moneys and render a statement of the funds to the Board of Directors at the first regular meeting of each month and at such other times as the Directors may require.

He shall pay all orders drawn on him by the President and countersigned by the Secretary; and shall, if required, give a bond acceptable to the Board of Directors from time to time, with sureties to be approved by the Board of Directors, for the faithful performance of his duties, and the payment of all moneys, and the delivery of all books and papers of the Exchange in his hands, to his successor in office.

### ARTICLE VIII.

#### DUTIES OF COMMITTEES.

SECTION 1. It shall be the duty of the Executive Committee to take charge of all the minor affairs that may be submitted to them by the officers of the Exchange during the interim between the regular meetings, or oftener if required, and to make report of such decisions as they may render at each regular meeting of the Board of Directors.

SECTION 2. It shall be the duty of the Finance Committee to supervise the finances of the Exchange; to examine and audit all claims and accounts against the same; to audit all accounts of the Treasurer every three months and to direct the investment of any funds in his hands in such manner as they may deem advisable for the best interests of the Exchange, subject to the approval of the Board of Directors.

No money shall be advanced by the Exchange on Membership Certificates.

SECTION 3. It shall be the duty of the Listing Committees to examine and report on



all stocks, bonds and other properties which are prepared to be entered on the list of the Exchange, and all applications to place any property on the list shall be referred to the Listing Committee, to which it properly belongs. Each Committee shall report to the Board on all such applications within thirty days after they shall have been received, and if the report be favorable, on approval thereof by the Board, and the payment of the listing fee, the application shall be allowed and listed. All applications shall be accompanied by payment of the listing fee, and if rejected the fee shall be returned.

SECTION 4. It shall be the duty of the Arbitration Committee to investigate and adjudicate all matters of differences arising between members of the Exchange which may be brought before them and also to consider and adjust such claims as may be preferred against members by non-members, when such non-members agree in writing to abide by their decision. No member of the Arbitration Committee shall take part in the trial of any case in which he is personally interested.

SECTION 5. It shall be the duty of the Membership Committee to consider all applications for admission to membership, and report their action thereon to the Board of Directors.

They shall investigate all cases of insolvency of members as soon as practicable after the announcement thereof to the Exchange with a view of ascertaining the cause and extent of the failure, whether the same was caused by reckless dealing or otherwise, and report the result of their investigation to the Board of Directors. They shall also consider and report on all applications for transfers of memberships, and all charges brought against any member, properly a subject for investigation by the Exchange.

SECTION 6. It shall be the duty of the Committee on Rules to see that the rules of the Exchange both on the floor and in the Clearing House are enforced, and to investigate and adjudicate any objectionable ruling made by any official of the Exchange which may be brought before them.

SECTION 7. Any member of the Exchange who is dissatisfied with the action of any committee, shall, upon notice to the Secretary, have the right to appear before the Board of Directors at their next meeting for a hearing.

#### ARTICLE IX. MEMBERSHIP.

SECTION 1. The persons named as Subscribers in the Articles of Incorporation, and all other persons duly elected and admitted, shall constitute the membership of the Exchange.

SECTION 2. The number of members is hereby limited to two hundred and fifty (250), and when it shall have reached one hundred (100), no more shall be admitted except by a majority vote of the Board of Directors.

SECTION 3. Every applicant for membership in this Exchange must be at least twenty-one years of age.

SECTION 4. All applications for membership shall be made in writing, accompanied with the required fee and shall be referred to the Membership Committee. On receipt of such application, a notice of the same, with the name of the applicant, shall be entered in a book kept for that purpose, open to members only, and it shall be the duty of members to inform the Committee in writing of any objections they may have to the person named within ten days from the date of registration; such communications to be duly considered in Committee and to be held confidential. If at the end of ten days a majority of the Committee shall report

favorably on such application, and the same shall be approved by the Board of Directors, such applicant shall be declared duly elected a member of the Exchange, and, upon signing the By-Laws, he shall be admitted to all the rights and privileges of membership. If the application for membership be rejected, the fee shall be returned.

SECTION 5. The By-Laws and Rules of this Exchange shall be construed as an obligation and pledge of each member to abide by and support the same, and any amendments that may be made thereto. Any member who shall refuse to comply with the laws of this Exchange, shall be reported to the Board of Directors, and if, after a proper hearing, the Board shall find against him by a vote of two-thirds of their number, they may declare him suspended or expelled.

SECTION 6. Every member shall have the right to withdraw from the Exchange, and to sell and transfer his membership. When such transfer is desired, the name of the successor shall be submitted, subject to election, as in the case of a regular applicant; and the transfer shall be made, provided the member transferring has no unsettled dues and no notice of any claims or contracts due from him to any member of the corporation has been filed with the Secretary.

SECTION 7. Any member reported to the Board of Directors for refusing to comply with the rules and regulations of this Exchange, or for any violation thereof, shall be allowed an opportunity of being heard before the Board; and if, on such hearing, the Board shall find against him, such penalty shall be inflicted as may be prescribed by the By-Laws, or when no penalty is specified, he shall be subject to censure, fine, suspension or expulsion, as the Board may deem proper, according to the gravity of the offense.

SECTION 8. If any member of this Exchange shall be guilty of fraud, upon trial and conviction thereof by a vote of two-thirds of the members of the Board of Directors, he shall be expelled, and his membership forfeited to the Exchange, subject, however, to claims against it held by other members under the rules.

SECTION 9. Every member of this Exchange in good standing shall be entitled to vote at all regular and special meetings thereof, as well by proxy as in person.

SECTION 10. Members of this Exchange to be in good standing shall not be in arrears for dues or fines, for more than one quarter. Failure to comply with this section may cause a member to lose his vote and he may be suspended from trading on the floor.

#### ARTICLE X.

##### DUES AND FEES.

SECTION 1. Every member, as often as once in three months shall pay such dues as the Board of Directors may require, but the sum shall not exceed ten dollars (\$10) per quarter, and for the first six months shall not exceed three dollars, (\$3.00) per quarter.

SECTION 2. The fees for listing stocks, bonds, and mining properties shall be such as the Board of Directors may establish, but when once established shall not be changed without a three-fourths vote of the Board.

#### ARTICLE XI.

##### MEETINGS.

SECTION 1. The annual meeting of this Exchange shall be held on the fourth Thursday in April of each year at 11 A. M.

##### SPECIAL MEETINGS.

SECTION 2. Special meetings of the members of the Exchange may be called at any time by the President at the request of a majority of the Board of Directors, or on the written request of ten members of the Exchange. The notice of such meetings shall state the objects for which they are called and shall be posted on the bulletin board of the Exchange for at least 10 days prior to their being held.

The Secretary shall also send a written notice of such meeting through the mail to each member of the Exchange at least ten days prior to such meeting.

SECTION 3. In case of the temporary absence or inability to act of both the President and Vice-President, the members may choose from their number a President pro tem.

#### ARTICLE XII.

##### MEETINGS OF THE BOARD OF DIRECTORS.

SECTION 1. The regular meetings of the Board of Directors shall be held on the second and fourth Thursday at 2 P. M., of each month.

SECTION 2. No member shall speak more than once nor longer than five minutes on any one question without the unanimous consent of the members present, nor without recognition by the presiding officer.

SECTION 3. The order of business at the meeting of the Board of Directors shall be:

- First.* Roll call.
- Second.* Reading of minutes.
- Third.* Reports of committees.
- Fourth.* Elections.
- Fifth.* Unfinished business.
- Sixth.* New business.

SECTION 4. All elections shall be by secret ballot.

#### ARTICLE XIII.

##### QUORUMS.

SECTION 1. A quorum for the transaction of business of the Exchange shall consist of a majority of the members in good standing, present in person or by proxy. At membership meetings and at meetings of the Board of Directors, the presence of five shall be necessary for a quorum.

#### ARTICLE XIV.

##### AMENDMENTS TO BY-LAWS.

SECTION 1. These By-Laws may be amended at any meeting of the members of the Exchange upon a majority vote of the members present, in person or by proxy; notice of any meeting at which amendments are to be considered, shall be given by the Secretary through the mail ten (10) days before such meeting, and accompanying such notice, the Secretary shall enclose a copy of the proposed amendment.

The president then appointed the following committees, which were confirmed by the board of directors:

##### EXECUTIVE.

Geo. W. Parsons, F. W. Edleston,  
Richard Garvey.

##### FINANCE.

H. M. Russell, E. Gruendyke, S. T. Parsons.  
LISTING MINING PROPERTIES, STOCKS AND BONDS.  
F. C. Garbutt, B. Salazar, J. H. Harin,  
P. L. Griffin, H. M. Russell.

##### LISTING OTHER STOCKS AND BONDS.

Charles Weir, J. H. Bryant, R. D. Wade,  
Joseph Bumiller, R. W. Poindexter.

##### ARBITRATION.

E. T. Loy, C. Edgerton, C. White Mortimer.

##### MEMBERSHIP.

T. A. Fairchild, Osias Willis, F. D. Lanterman.

##### RULES.

E. K. Alexander, G. J. Griffith, C. A. Stilson.



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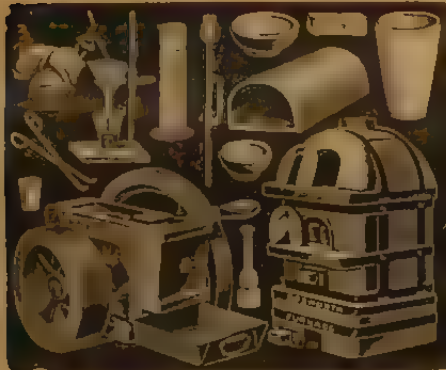
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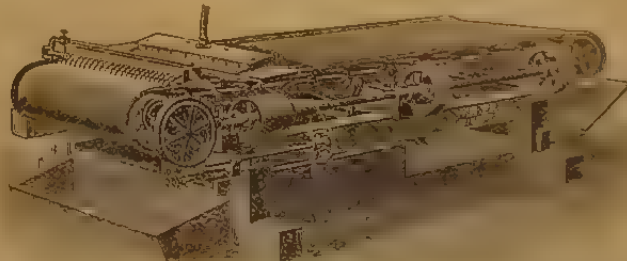
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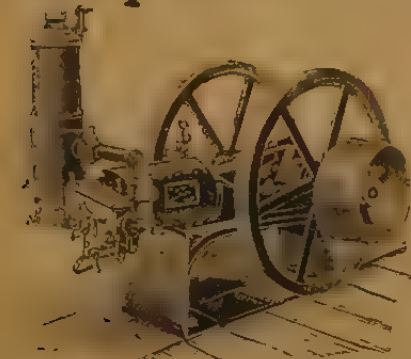
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New York Quotations:			
	SILVER	COPPER	LEAD
May. 1	67 1/4	10 8 1/4	2 00
" 2	67 1/4	10 7 1/2	2 00
" 3	67 1/4	10 7 1/2	2 00
" 4	67 1/4	10 7 1/2	2 00
" 5	67 1/4	10 7 1/2	2 00
" 6	67 1/4	10 7 1/2	2 00
" 7	67 1/4	10 7 1/2	2 00
" 8	67 1/4	10 7 1/2	2 00
" 9	67 1/4	10 7 1/2	2 00
" 10	67 1/4	10 7 1/2	2 00
" 11	67 1/4	10 7 1/2	2 00
" 12	67 1/4	10 7 1/2	2 00
" 13	67 1/4	10 7 1/2	2 00
" 14	67 1/4	10 7 1/2	2 00
" 15	67 1/4	10 7 1/2	2 00

**MINING STOCK QUOTATIONS.****BOSTON**

Algonquin	1 00	Franklin	12 00
Atlantic	18 00	Kearney	10 05
Boston & Mont	75 00	Oacela	25 00
Butte & Boston	3 00	Quincy	115 00
Cal & Helca	300 00	Tamarack	85 00
Centennial	2 00	Wolverine	6 50

**COLORADO SPRINGS STOCKS**

Anaconda	58	Mollie Gibson	60
Blue Bell	08	Matosa	15
Colfax	05 1/2	Mount Rosa	10
Columbine	03 1/2	Ophir	10
Fanny Rawlins	10	Orphan Bell	13
Gold King	63	Pharmacist	10
Gold and Globe	22	Portland	1 45
Isabella	52	Work	12
Jack Pot	07	World	02 1/2
Jefferson	18	Del Monte	03 1/2
Monarch	08		

**DENVER STOCK REPORT**

Alamo	08 1/2	Anaconda	58
Bangkok	07	Aola	03
Bankers	11	Big Six	10
Crescent	05	Boston & Id	17
C. & C. Con	13	Union Con	08
Chimbrax	03	Gold & Globe	10
C. & O. C.	06	Mollie Gibson	75
Golden Fleece	1 80	Mt. Rosa	10
Gold Standard	08	Pharmacist	10
Isabella	54	Union Gold	40

**HELENA, MONTANA**

Alice	25	Granite Mount	1 65
Bald Butte	3 55	Hope	1 50
Benton Group	10	Iron Mountain	40
Bi-Metallic	3 00	Ontario	1 00
Elizabeth	10	Poorman	40

**NEW YORK**

Crown Point	45	Sierra Nevada	85
Con. Cal. & Va.	1 80	Standard	2 75
Gold & Curry	40	Union Con	53
Hale & Norcross	1 25	Iron Silver	10
Homestake	50 50	Quicksilver	3 00
Mexican	50	Quicksilver pld	17 02
Ontario	14 50	Bulwer	25
Ophir	1 30	Yellow Jacket	35
Plymouth	20	Deadwood	45

**SAN FRANCISCO.**

Alta	06	Mon	15
Belcher	47	Nevada Queen	05
Best & Belcher	58	Ophir	1 25
Bodie Con	55	Potosi	35
Chollar	98	Savage	30
Con. Cal. & Va	1 80	Sierra Nevada	63
Crown Point	45	Union Con	52
Hale & Norcross	1 25	Utah	12
Mexican	45	Yellow Jacket	35
Gould & Curry	55	Bulwer	25

**ST. LOUIS.**

American Nettle	25	Elizabeth	20
Granite Mt.	1 80	Leo	3
Adams	80	Hope	1 40
Bi-Metallic	3 30	Small Hopes	90

**SALT LAKE CITY**

Ajax	85	Brake Hill	120 00
Alliance	60	Horn Silver	2 05
Am. Nat. G's	07	Little Pittsburg	03
Anchor	2 25	Lucky Roll	25
Appex	07	Mammoth	2 80
Boggs	25	Meers	50
Bull. Beck	8 80	Mercur	7 10
Cane Springs	80	New Tintie	2 30
Cent.ureka	76	Nigara	2 25
Citex Con	45	No. 3 reek	08
Consstock	15	North Spy	2 40
Crescent	04	Ontario	16 00
Dalton	08	Silver King	18 25
Daly	8 50	Slater	1 00
Daly West	7 70	Tetro	06
Elko	20	Utah	1 85

**MEXICO**

Name of Company	State	No
Angelinas	Guerrero	350
Asturiana y Anexos	Zacatecas	145
Cerro Colorado	Chihuahua	10
Compania y Anexos	S. Luis Potosi	200
El Oro	Guerrero	80
do pre		100
Luz de Borda	Michoacan	30
do Tree stock		30
Luz de Maravilla	Hidalgo	1,000
Real del Monte		80
Rosario y Anexos		80
do pre		80
San Rafael del Oro	Guerrero	800
Sta. Gertr y Anexos	Hidalgo	75
do Free Stock		80
Sta. Maria de la Paz	S. Luis Potosi	600
Tlauringo	Puebla	80
Zamorahucan (gold)	Vera Cruz	100
Zona Min. de Potosi	Guerrero	70

Note—The above Mexican stocks are figured  
on the basis of Mexican silver.



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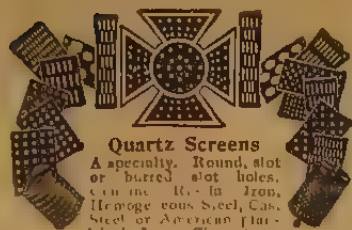
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A specially. Round, slot or barred slot holes. Can be made in Iron, Hemlock, Iron, Steel, Cast Steel or American Flashed Iron, Zinc, Copper or Brass Screens for all purposes. CALIFORNIA PERFORATING SCREEN CO., 145-147 Beale St., S.F.

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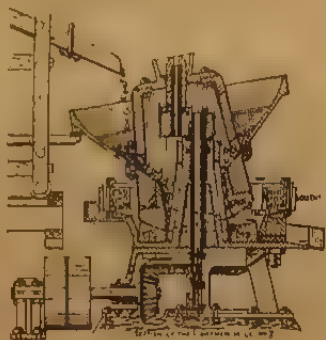
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Something Good and Cheap



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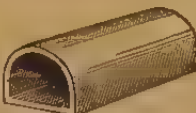
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ECONOMICAL; Runs as smooth as a steam engine; Starts without churning  
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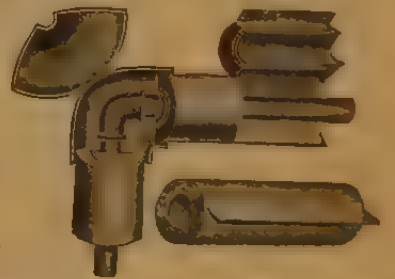
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One 16"x42" Hamilton Corliss Engine.  
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Specialty made of the Improved, Iron Frame Self-Contained Stamp Mill, the greatest success of the day in reduction of ore to pulp. A great boon to mill builders in countries where timber is plenty and therefore a greater boon to those who have no timber from which to draw the huge pieces needed in old style mills. We claim for this mill:

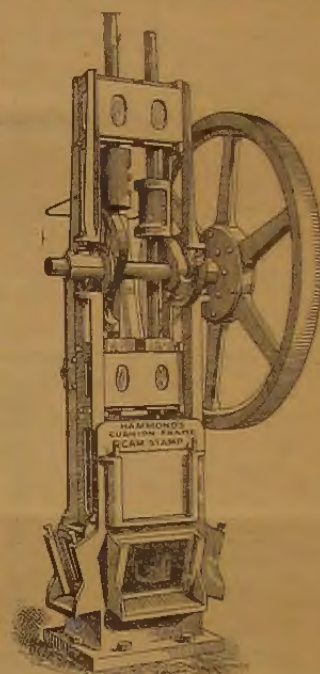
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We call the attention of Prospectors to our Self Contained Two Stamp Mill.

We have inaugurated a system of amalgamation and Concentration which renders both much more satisfactory and cheapens the cost of concentration by a great saving in the repairs to the complicated machinery now used.

Parties intending erecting mining plants would do well to investigate our mills. We build any mill desired and will deliver F. O. B. Steamer or cars at San Francisco, California.

Write us for Catalogues and Estimates



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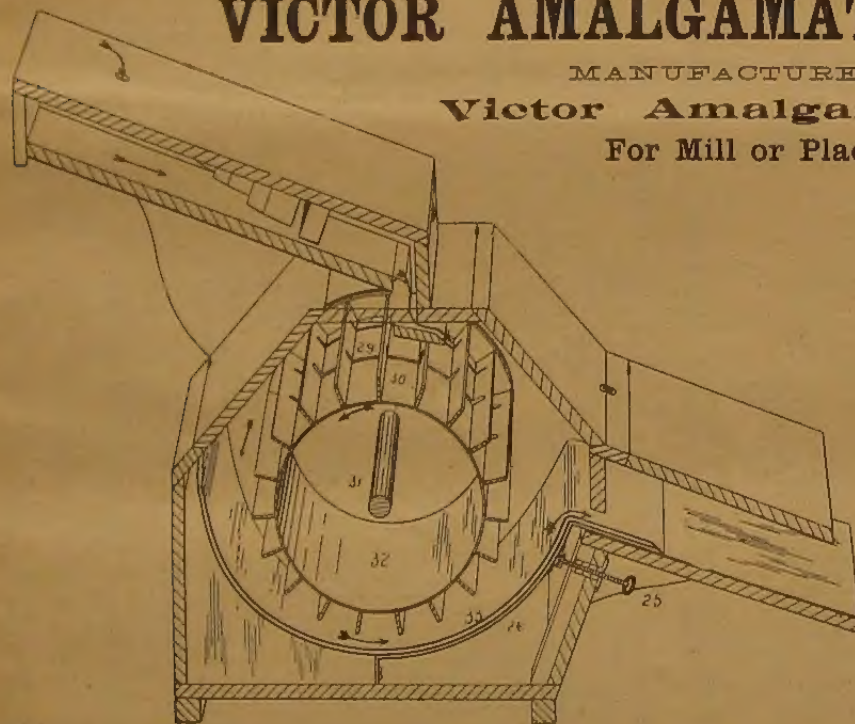
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THE VICTOR AMALGAMATOR is the greatest gold saving machine ever invented. It will come nearer saving every color of free gold than any gold saving device made up to the present time. Whether the gold is fine, flake or flour, its work is perfect. The only machine that works the black sands of the ocean perfectly, saving the fine flake gold contained therein. Our machines are now running on beach sand and on tailings from some of the best mills in California, and they are working successfully. We give a guarantee with each machine. In working over old tailings from a stamp mill that contain free gold, amalgam and quicksilver, this machine has no equal.

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#### Dodge and Giant Rock Breakers.

#### Improved Mills

That successfully take the place of stamps.

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Doing away with plates on all kinds of mills for saving gold.

#### Distributors

That save a vast amount of care and labor, divide the pulp and water evenly to two or more lines of concentrators.

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Sizes the ore from the mill, separates the sands for the jig, and slimes for the slime concentrator.

#### Jig Concentrator

For working the sands from separating box.

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Works the slimes from the separator.

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Concentrates ores where there is a lack of water.

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To crush to any degree of fineness desired.

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Works cement gravel without crushing the gravel.

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Established in Colorado, 1866. Samples by mail or express will receive prompt and careful attention. Gold and Silver Bullion refined, melted and assayed, or purchased.

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CAPACITY.....10 to 15 tons  
POWER REQUIRED.....only 2-horse  
TOTAL WEIGHT.....only 2½ tons  
TOTAL COST F. O. B.....only \$1000

This includes Automatic Self Feeder, Mill, Silver Plates, Mill Frame Timbers, Foundation Timbers, etc.

No Noise—No Vibration—No Jar.

More than double screen surface with one-quarter power and less than one-half wear and tear of ordinary Stamp Battery. Can be set up in 24 hours.

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	Pueblo	13.50	15.00	17.00	
	Denver	15.00	16.50	18.50	
Ocala, " "	El Paso	9.50	11.00	13.00	
	Pueblo	13.00	14.50	16.50	
	Denver	14.50	16.00	18.00	
Torrón, " "	El Paso	9.00	10.50	12.50	
	Pueblo	12.50	14.00	16.00	
	Denver	14.00	15.50	17.50	
Hermosillo, " "	El Paso	8.50	10.00	12.00	
	Pueblo	12.00	13.50	15.50	
	Denver	13.50	15.00	17.00	
Paseo, " "	El Paso	8.00	9.50	11.50	
	Pueblo	11.50	13.00	15.00	
	Denver	13.00	14.50	16.50	
Querobabi, " "	El Paso	7.50	9.00	11.00	
	Pueblo	11.00	12.50	14.50	
	Denver	12.50	14.00	16.00	
Santa Ana, " "	El Paso	7.00	8.50	10.50	
	Pueblo	10.50	12.00	14.00	
	Denver	12.00	13.50	15.50	
Magdalena, " "	El Paso	6.50	8.00	10.00	
	Pueblo	10.00	11.50	13.50	
	Denver	11.50	13.00	15.00	
Imoria, " "	El Paso	6.00	7.50	9.50	
	Pueblo	9.50	11.00	13.00	
	Denver	11.00	12.50	14.50	
Nogales, A. T.	El Paso	5.50	7.00	9.00	
	Pueblo	9.00	10.50	12.50	
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Calabazas, " "	El Paso	5.00	6.50	8.50	
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	Denver	10.00	11.50	13.50	
Sanford, " "	El Paso	4.50	6.00	8.00	
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	Denver	9.50	11.00	13.00	
Crittenden, " "	El Paso	4.00	5.50	7.50	
	Pueblo	7.50	9.00	11.00	
	Denver	9.00	10.50	12.50	
Fairbank, " "	El Paso	3.50	5.00	7.00	
	Pueblo	7.00	8.50	10.50	
	Denver	8.50	10.00	12.00	
Fucson, " "	El Paso	3.00	4.50	6.50	
	Pueblo	6.50	8.00	10.00	
	Denver	8.00	9.50	11.50	
Benson, " "	El Paso	2.50	4.00	6.00	
	Pueblo	6.00	7.50	9.50	
	Denver	7.50	9.00	11.00	
Steins Pass, N.M.	El Paso	2.00	3.50	5.50	
	Pueblo	5.50	7.00	9.00	
	Denver	7.00	8.50	10.50	
Lordsburg, " "	El Paso	1.50	3.00	5.00	
	Pueblo	5.00	6.50	8.50	
	Denver	6.50	8.00	10.00	
Silver City, " "	El Paso	1.00	2.50	4.50	
	Pueblo	4.50	6.00	8.00	
	Denver	6.00	7.50	9.50	
Hudson, " "	El Paso	0.50	2.00	4.00	
	Pueblo	4.00	5.50	7.50	
	Denver	5.50	7.00	9.00	
Deming, " "	El Paso	0.00	1.50	3.50	
	Pueblo	3.50	5.00	7.00	
	Denver	5.00	6.50	8.50	
Florida and Lake Valley, " "	El Paso	0.00	1.00	3.00	
	Pueblo	3.00	4.50	6.50	
	Denver	4.50	6.00	8.00	
Nutt, " "	El Paso	0.00	0.50	2.50	
	Pueblo	2.50	4.00	6.00	
	Denver	4.00	5.50	7.50	
El Paso, " "	El Paso	0.00	0.00	2.00	
	Pueblo	2.00	3.50	5.50	
	Denver	3.50	5.00	7.00	
Las Cruces, " "	El Paso	0.00	0.00	1.50	
	Pueblo	1.50	3.00	5.00	
	Denver	3.00	4.50	6.50	
Rincon, " "	El Paso	0.00	0.00	1.00	
	Pueblo	1.00	2.50	4.50	
	Denver	2.50	4.00	6.00	

FROM

TO

Car Loads, in dollars and cents per ton of 2,000 lbs.			
Ore	Concentrates.	Lead Bullion, valuation not to exceed \$100 per ton.	Base Metal, Copper Matte, Bar and Black Copper, valuation not to exceed \$300 per ton.
Valuation not to exceed \$50 per ton.	Valuation not to exceed \$100 per ton.	Valuation not to exceed \$300 per ton.	

A. T. &amp; S. F. R. R.

ATLANTIC &amp; PACIFIC RAILROAD

## Rates on Copper or Zinc Ore to Canon City.

Taking Effect July 1st, 1891.—So far as rates on Copper or Zinc Ores are concerned, Canon City, Col., will be considered as common with Pueblo; in other words the rates shown in Tariff as applying on shipments of Ore to Pueblo, will also apply on shipments of Copper or Zinc Ore to Canon City.

In the absence of positive information as to the value of Ore, Ore Concentrates, or Base Metal, Agents will bill at rates sufficiently high to protect the Company. These rates can be corrected when evidence of actual value is produced.

The market price at destination, to be verified by assays made

by the Railroad Company, at owner's expense, will govern the value and determine the rate.

Agents must cause shippers to understand the condition upon which these rates are based, and should make their receipts read: "Rates subject to correction according to value at destination."

These rates only apply on lots of ten tons or over. On lots of four tons and under ten, 20 per cent, and on lots of one ton and less than four, 40 per cent will be added to above rates. Base Metal, Copper Matte and Ore Concentrates, in lots of less than one ton, will take first-class rates from all the above points, except when the rate based on valuation makes it higher, that rates on small lots of high value may not be less than the rates when in lots of one ton or over as above.

Charges on Ore in car loads must be guaranteed, and on lots less than a car-load must in all cases be prepaid.

**Omaha Rates.**—The Rates to Omaha, Neb., all grades, will be \$1 per ton higher than the rates to Kansas City.

**Notes.**—All shipments of Ore and Concentrates valued not to exceed \$50 per ton must be billed at the rate for Ore and Concentrates, "Valuation over \$50 not to exceed \$100 per ton," and shipping receipt must be issued by agent at said rate. Agent at destination is authorized to correct to rate for Ore and Concentrates, "Valuation not to exceed \$50 per ton," upon presentation of properly certified smelter returns, showing that the value does not exceed \$50 per ton.

Intermediate points not named will take rates provided for next station beyond.

## SOUTHERN CALIFORNIA RAILWAY.

Rate on Ore in car loads, valuation not to exceed \$50 per ton, minimum weight 24,000 lbs. Oro Grande, Cal., to Pueblo, Col., \$10.30 per ton.

Same, Victor, Cal., to Pueblo, \$10.35 per ton.

Ore, car loads, when coming from the Republic of Mexico valuation not to exceed \$50 per ton; San Diego or National City to Denver, Col., and Pueblo, Col., \$12 per ton of 2,000 lbs.

Ore, valuation not to exceed \$100 per net ton and so receipted for, minimum weight 30,000 lbs. 75c per 100 lbs. to Denver and Pueblo, Col., from all points on the Southern California Railway.

## ORE TARIFF.

From Points in New Mexico, Arizona and California, to El Paso, San Francisco and Vallejo Junction.

## SOUTHERN PACIFIC R. R. COMPANY.

FROM	TO	Valuation not to exceed \$50 per ton.			
		Valuation not to exceed \$50 per ton.	Valuation not to exceed \$100 per ton.	Valuation not to exceed \$300 per ton.	Lead Bullion, Copper Matte, Bar and Black Copper, value not to exceed \$300 per ton.
El Paso, Tex.	San Francisco	7.00	9.10	11.20	
Deming, N.M.	El Paso	2.00	2.00	2.20	
	San Francisco	7.00	10.40	13.00	
Gage, " "	El Paso	2.00	2.00	2.20	
	San Francisco	7.00	10.20	12.80	
Separ, " "	El Paso	2.50	2.50	3.00	
	San Francisco	7.00	10.20	12.60	
Lordsburg, " "	El Paso	2.50	3.00	3.60	
	San Francisco	7.00	10.00	12.40	
Steins Pass, " "	El Paso	2.50	3.00	3.60	
	San Francisco	7.00	9.80	12.20	
Bowie, A. T.	El Paso	3.00	3.60	4.40	
	San Francisco	7.00	9.40	11.80	
Willcox, " "	El Paso	3.00	4.00	5.00	
	San Francisco	7.00	9.20	11.60	
Dragoon, " "	El Paso	3.00	4.20	5.20	
Summit, " "	El Paso	3.00	4.20	5.20	
	San Francisco	7.00	9.20	11.60	
Benson, " "	El Paso	3.50	4.35	5.60	
	San Francisco	7.00	9.00	11.40	
Tucson, " "	El Paso	3.50	4.35	5.60	
	San Francisco	7.00	8.80	11.00	
Casa Grande, " "	El Paso	4.00	5.00	6.00	
	San Francisco	7.00	8.00	10.00	
Maricopa, " "	El Paso	6.40	6.40	8.00	
	San Francisco	7.00	7.80	9.80	
Gila Bend, " "	El Paso	7.00	7.40	9.40	
	San Francisco	7.00	7.40	9.40	
Aztec, " "	El Paso	7.05	7.05	8.85	
	San Francisco	7.00	7.00	8.80	
Gila City, " "	El Paso	7.55	7.55	9.45	
	San Francisco	6.80	6.80	8.20	
Yuma, " "	El Paso		7.70	9.60	
	San Francisco		6.40	8.00	
Newhall, Cal.	San Francisco	6.00	6.00	8.00	
Mojave, " "	San Francisco	3.85	3.85	4.80	
Caliente, " "	San Francisco	3.80		4.80	
Milton, " "	San Francisco	2.10		2.05	
Hollister, " "	San Francisco		2.50		

These rates apply only on lots of twelve tons or over. On lots of four tons and under twelve, 20 per cent; and on lots of one ton and less than four 40 per cent will be added to the above rates.

Vallejo Junction takes same rate as San Francisco.



# THE PUEBLO Smelting and Refining Company,

PUEBLO, COLORADO.

BUYERS OF

Gold, Silver, Lead and Copper Ores,  
Copper Matte and Bullion.

## Refiners of Gold, Silver, Lead and Copper.

Manufacturers of Bar and Pig Lead, Lead Pipe, Antimonial Lead, Copper Ingots,  
Granulated Test Leads and Litharge.

Pays Highest Prices for all classes of Ores.

Especial Attention to Sampling by most Approved Processes.

Quick Returns on all Consignments.

### Kendall Gold and Silver Extraction Co.

THE KENDALL PROCESS is the most efficient method of using cyanide for the extraction of precious metals from their ore; wherever this process has been adopted the result has been increased percentages of values recovered and saving of time; material reduction in consumption of chemical has also been demonstrated with respect to several classes of ores.

The Kendall System is covered by patents which this Company will defend.

The AMERICAN CYANIDE GOLD & SILVER RECOVERY Co., organized in Denver, more than a year ago to introduce and operate the Kendall Process in several States, have closed contracts with some ten mines for the use of this process after exhaustive comparative tests with the ordinary plain cyanide method.

Captain De la Mar has adopted the process at his Nevada Mines, where a 250-ton plant is being completed. He writes that he is saving 95 per cent. of his gold values, and regards the Kendall Process as the cheapest and best he is aware of for the treatment of gold ores.

All ores, without exceptions, amenable to cyanide treatment, can be treated to better advantage by the Kendall Process. This can be accepted as an axiom.

Owners of mines and reduction Works can obtain full information on application to

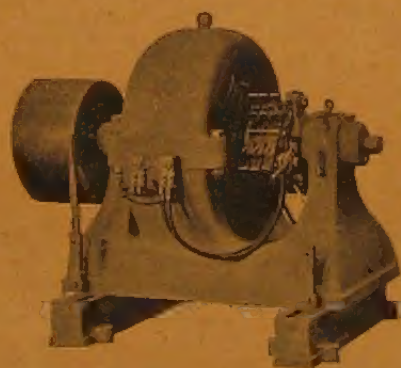
**Kendall Gold and Silver Extraction Co.**

47 Broadway, New York City

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We make a specialty of furnishing all kinds of electrical Machinery for mining purposes.



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### RUMSEY & SIKEMEIER CO.

Manufacturers and Jobbers of

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Wrought Iron Pipe and Fittings, Belting, Hose and  
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Engines, Boilers and Steam Pumps, Hoisting and Conveying Machinery, Ore Cars and Skips, Ore and Water Buckets.

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Our experience of 33 Years in the water wheel business, enables us to suit every requirement of Water Power Plants. Send for Illustrated Pamphlet.

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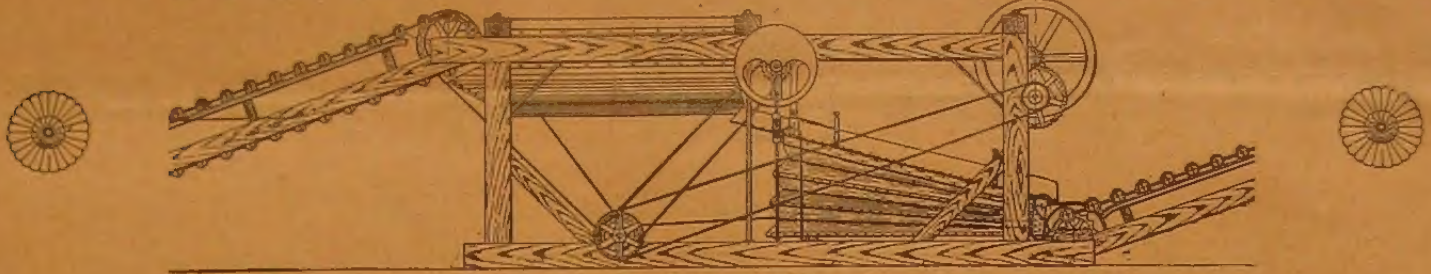
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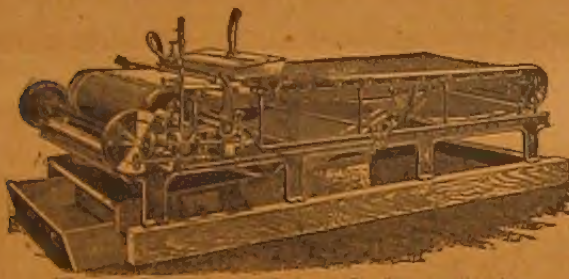
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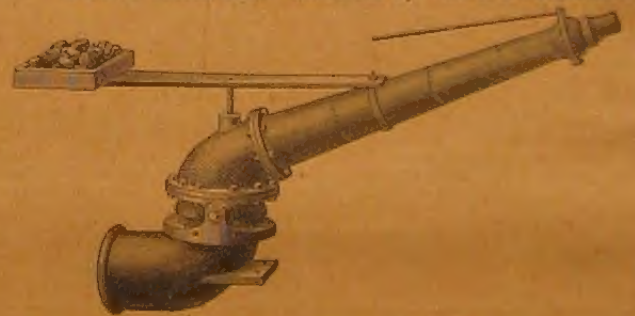
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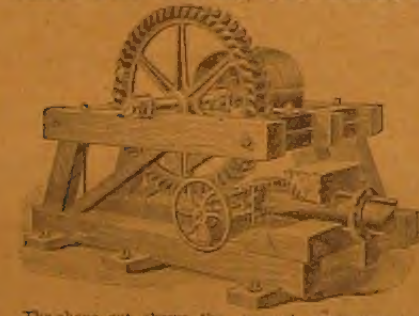
GOLD AND SILVER STAMP MILLS.

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IMPROVED HYDRAULIC GIANT

The above cut illustrates the improved form of Hydraulic Giants, in which the Center Bolt is dispensed with, which was so liable to catch trash. Prices and catalogues of our specialties sent free on application.



The above cut shows the general arrangement of Knight's standard Water Wheels, of which there are more than 450 in use in California alone. These wheels are made from a foot to 6 feet in diameter, from 10 to 1000 horse power, and adapted to all needs and purposes. Descriptive circulars mailed free on application.

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**MINING MACHINERY AND SUPPLIES, ENGINES AND BOILERS**

ROPP STRAIGHT LINE FURNACE

FOR ROASTING, CHLORINATING, AND DESULPHURIZING ORES.

**Knowles Steam Pumps**      **Lidgerwood Hoisting Engines**  
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**Wood Working, Iron Working and Saw Mill Machinery.**